

Fred H. Sklar  
South Florida Water Management District  
Everglades Research Division, Watershed Department  
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**Education:**

- Ph.D. 1983. Louisiana State University, Baton Rouge. Dissertation title: 'Water Budget, Benthological Characterization, and Simulation of Aquatic Material Flows in a Louisiana Freshwater Swamp.'
- M.S. 1976. Louisiana State University, Baton Rouge. Thesis title: 'Primary Production in the Mississippi Delta Bight Near a Shallow Bay Estuarine System.'
- B.A. 1973. Rutgers College, New Brunswick, NJ.

**Professional and Technical Expertise:**

Project management, landscape ecology, coastal and wetland ecology, ecosystem modeling, natural resource management, marine biology, systems analysis, dynamic simulation, remote sensing, image processing, computer applications in environmental science, computer programming (basic, fortran, parallel processing), experimental field ecology (primary production, water chemistry, hydrology, sedimentation, fate and transport of pesticides), physiological ecology (adenylate energy charge, scope for growth), biogeochemical processes, and global climate change.

**Positions Held:**

- 2000-Present: South Florida Water Management District, Chief Environmental Scientist
- 1993-2000: South Florida Water Management District, Sr. Supervising Scientist
- 1996-Present Adjunct Professor, Department of Biology, Florida International University, Miami
- 1994-Present Adjunct Professor, Rosenstiel School of Marine & Atmospheric Sci., Univ. of Miami
- 1987-1993: Assistant Professor of Research, Belle W. Baruch Institute for Marine Biology and Coastal Research, University of South Carolina.
- 1991-1992: Adjunct Professor, Grice Marine Lab, College of Charleston.
- 1985-1987: Assistant Professor of Research, Coastal Ecology Institute, Center for Wetland Resources, Louisiana State University.
- 1983-1985: Postdoctoral Research and Teaching Associate, Coastal Ecology and Fisheries Institute, Center for Wetland Resources, Louisiana State University.
- 1976-1979: Research Associate, Center for Wetland Resources, Louisiana State University.

### **South Florida Project Management Experience:**

1. 1993-1994: Primary author of the South Florida Water Management 5-year Research Plan (Florida Bay, landscape modeling, wildlife, hydrologic needs of the Everglades, and phosphorus threshold).
2. 1993–1995: Designed and initiated the phosphorus threshold research program. (\$1.5 M)
3. 1993-1999: Primary hiring officer for 17 scientific FTE's
4. 1993-1999: Landscape modeling (ELM, SAWCAT, ELFM, CALM, ELVM, HolyCat) (\$3.5 M)
5. 1994-1998: Vegetation mapping and remote sensing of the Everglades (\$2.0 M)
6. 1995–1996: Designed and coordinated the construction of the Everglades Botanical Research Complex (\$300 K)
7. 1995-1998: Wading bird experiments in the ENR test cells (\$ 250 K)
8. 1995-1999: Mangrove and marsh fish studies (\$450 K)
9. 1995-2000: Transition zone studies and nutrient exports to Florida Bay (\$850 K)
10. 1996-1999: Cattail and sawgrass nutrient kinetics (\$650 K)
11. 1996-2006: Wetland elevation change and sedimentation rates (\$1.5 M)
12. 1997-2005: C-111 gradient analyses (\$ 1.5 M)
13. 1998-2008: Tree island ecology and restoration (\$3.5 M)
14. 1998-1999: The Everglades 1999 EFA Report (\$250 K)
15. 1998-2000: Edit and publish: “Tree Islands of the Everglades” (\$80 K)
16. 1998-2004: Marsh vegetation response to hydrology (\$2.5 M)
17. 1999-2000: The Everglades 2000 Consolidated Report (\$250 K)
18. 1999-2000: Program Chair for the 15<sup>th</sup> Annual Symposium of the International Association for Landscape Ecology (\$150 K)
19. 2000-2010: Implementation of Everglades Restoration, Decompartmentalization Phase 1 (\$104 M)
20. 2001-2011: Loxahatchee Impoundment Landscape Assessment (LILA) to evaluate the influence of flow velocity (\$4.0 M)

### **Publications and Reports:**

1. Lorenzen, B., H. Brinx, I.A. Mendelssohn, K.L. McKee, S. Miao and F. Sklar (in review) Phosphorus uptake kinetics of the two competing Everglades species, *Cladium jamaicense* and *Typha domingensis*. *Physiological Plantarum*.
2. Wu, J, F. He, Y. Wu, F. Sklar and H.C. Fitz. (in review.) Check-pointing and rollback techniques for parallelization of the Everglades Fire Model in a distributed network. *J. Parallel and Distributed Computing*.
3. McKee, K.L., I.A. Mendelssohn, P.L. Faulkner, B. Lorensen, H. Brix, S. Miao, and F.H. Sklar. (in review). Effects of phosphorus and flooding on growth responses of *Cladium jamaicense* and *Typha domingensis* cultered in rhizotrons. *Wetlands*.
4. Sklar, F.H. et al. 2002. An Annual Report: The hydrological needs of the Everglades - Chapter 6. In: Redfield, G. (ed.) *The Everglades 2002 Consolidated Report*. SFWMD, West Palm Beach, FL.
5. Sutula, M.A., B.P. Perez, D.L. Childers, J.W. Day, E. Reyes, D. Rudnick and F. Sklar. (in review). Spatio-temporal variability in material exchange between the

Southeastern Everglades wetlands and Florida Bay: I Patterns in material concentration. *Estuaries*.

6. Sutula, M.A., B.P. Perez, D.L. Childers, J.W. Day, E. Reyes, D. Rudnick and F. Sklar. (in review). Spatio-temporal variability in material exchange between the Southeastern Everglades wetlands and Florida Bay: II Patterns in export of carbon and nutrients. *Estuaries*.
7. Dong, Q., P. McCormick, F. Sklar and D. DeAngelis 2002. Structural instability, multiple stable states, and hysteresis in periphyton driven by phosphorus enrichment in the Everglades. *Theoretical Pop. Biology* 61:1-13.
8. Cornwell, C., Y. Wu, L. Willie and F.H. Sklar. 2001 Functional decomposition for parallelization of the Everglades Landscape Vegetation Model. *Ecol. Mod.* 144(1):13-20.
9. Davis, S.E., D.L. Childers, J.W. Day, Jr., D.T. Rudnick and F.H. Sklar. 2001 Nutrient dynamics in vegetated and unvegetated areas of a southern Everglades mangrove creek. *Estuaries, Coastal and Shelf Science* 52:753-768.
10. Sklar, F.H. and A. van der Valk. (eds.) *Tree Islands of the Everglades*. Kluwer Academic. Dordrecht (in press)
11. Wu Y. and F.H. Sklar. (in press) Evaluating hydrologic impacts on tree islands using an Everglades landscape vegetation model. In: Sklar and van der Valk. (eds.) *Tree Islands of the Everglades*. Kluwer Academic. Dordrecht
12. Sklar, F., C. McVoy, R. ZanZee, D.E. Gawlik, K. Tarboton, D. Rudnick and S. Miao. 2002. The effects of altered hydrology on the Everglades. pp. 39-82. In J.W. Porter and K.G. Porter (eds). *The Everglades, Florida Bay and Coral Reefs of the Florida Keys: An Ecosystem Sourcebook*. CRC Press.
13. Sklar, F.H. et al. 2000. The hydrological needs of the Everglades. Chapter 2, pp.1-68, In: Redfield, G. (ed.) *The Everglades 2001 Consolidated Report*. SFWMD, West Palm Beach, FL.
14. Miao, S, S. Newman and F. Sklar. 2000 Effects of habitats and seed sources on phenotypical traits of *Typha domingensis* in the Florida Everglades. *Aquatic Botany* 67:1-15
15. Sklar, F.H., H.C. Fitz, Y. Wu, R. Van Zee and C. McVoy. 2001. The design of ecological landscape models for Everglades restoration. *Ecological Economics* 37:379-401.
16. Sklar, F.H. and C. Hunsaker. 2001 The use and uncertainty of spatial data for landscape models: An overview with examples from the Florida Everglades. pp. 15-46. In: Hunsaker, C.T., M.F. Goodchild, M.A. Friedl and T.J. Case. (eds.). *Spatial Uncertainty in Ecology*. Springer-Verlag. New York.
17. Rudnick, D., C. Madden and F. Sklar. 1999. Sufficiency Review of Information Needed to Establish Minimum Flows and Levels for Florida Bay. A SFWMD Report.
18. Sklar, F.H. et al. 1999. Chapter 2: The hydrological needs of the Everglades. pp.2.1-2.62, In: Redfield, G. (ed.) *The Everglades 2000 Consolidated Report*. SFWMD, West Palm Beach, FL.
19. Fitz, H.C. and F.H. Sklar. 1999. Ecosystem analysis of phosphorus impacts and altered hydrology in the Everglades: A landscape modeling approach. pp 585-620. In: K. Ramesh Reddy et al. (ed.). *Phosphorus Biogeochemistry in Subtropical Ecosystems*. Lewis Publishers, Boca Raton.

20. Miao, S.L. and F. Sklar. 1998. Biomass and nutrient allocation of sawgrass and cattail along a nutrient gradient in the Florida Everglades. *Wetlands Eco. Mgmt.* 5:245-263.
21. Sklar, F.H. et al. 1998. Chapter 2: The hydrological needs of the Everglades. pp.2.1-2.70. In: Redfield, G. (ed.) *The Everglades 1999 Interim Report*. SFWMD, West Palm Beach, FL.
22. Wu, J., J. Pan, K. Gopu, F. Sklar and Y. Wu. 1998. Parallel implementation of the Everglades Landscape Model. *Proceedings of the Seventh ISCA International Conference on Parallel and Distributed Computing and System*. Washington, D.C.
23. Miao, S., R.E. Borer and F.H. Sklar. 1998. Sawgrass seedling responses to transplanting and nutrient additions. *Restoration Ecology*. 5(2):162-168.
24. Wu, J., H. Haung, C. Fitz, Y. Wu and F.H. Sklar. 1998. A new domain partition scheme for the Everglades Landscape Model. *J. Computers and Applications*. 20(3):137-146.
25. McCormick, P.V., P.S. Rawlik, K. Lurding, E.P. Smith and F. Sklar. 1996. Periphyton-water quality relationships along an enrichment gradient in the northern Everglades. *J. North American Benthological Society*. 15(4):433-449.
26. Sklar, F.H. and J. A. Browder. 1998. Coastal environmental impacts brought about by alterations to freshwater flow in the Gulf of Mexico. *J. Environ. Mgt.* 22(4):547-562.
27. Fitz, H.C., E.B. DeBellevue, R. Costanza, R. Boumans, T. Maxwell, L. Wainger and F.H. Sklar. 1995. Development of a general ecosystem model for a range of scales and ecosystems. *Ecol. Modelling*. 88:263-295.
28. Miao, S., R.E. Borer and F.H. Sklar. 1995. Preliminary studies of sawgrass seedlings for Everglades restoration. pp. 118-123. In: Webb, F.J. Jr. and P.J. Cannizzaro (eds.). *Proceedings of the 22nd Annual Conference on Ecosystems Restoration and Creation*. May, 1995. Hillsborough Community College, Tampa, FL.
29. Sklar, F. H. 1995. Coastal Gulf of Mexico environmental impacts brought about by alterations to freshwater flow. pp. 217-238. In: NRC Ocean Studies Board. *Symposium on Improving Interactions Between Coastal Science and Policy*, 25-27 Jan. 1995, New Orleans. National Academy of Science Press. Washington D.C.
30. Wu, Y., F.H. Sklar and K. Rutchey. 1997. Analysis and simulations of fragmentation patterns in the Everglades. *Ecol. Application*. 7(1):268-276.
31. Wu, Y., F.H. Sklar, K. Gopu and K. Rutchey. 1996. Fire simulations in the Everglades landscape using parallel programming. *Ecol. Model*. 93:113-124
32. Childers, D.L., H.N. McKellar, R.F. Dame, F.H. Sklar and E. Blood. 1993. A dynamic nutrient budget of subsystem interactions in a salt marsh estuary. *Estuarine, Coastal, and Shelf Science*. 36:105-131
33. Hutchinson, S.E., F.H. Sklar and C. Roberts. 1995. Short term sediment dynamics in a southeastern U.S.A. *Spartina* marsh. *J. Coastal Res.* 11(2):370-380
34. Sklar, F.H., K.K. Gopu, T. Maxwell and R. Costanza. 1994. Spatially explicit and implicit dynamic simulations of wetland processes. pp. 537-554. In: W. J. Mitsch (ed.). *Global Wetlands: Old and New*. Elsevier Science B.V., Amsterdam.
35. Reyes, E., J.W. Day and F.H. Sklar. 1994. Ecosystem models of aquatic primary production and fish migration in Laguna de Terminos, Mexico. pp. 519-536. In: W. J. Mitsch (ed.). *Global Wetlands: Old and New*. Elsevier Science B.V., Amsterdam
36. Childers, D.L., F.H. Sklar and T. Jordon. 1993. Seasonal measurements of sediment elevation in three mid-Atlantic estuaries. *J. Coastal Res.* 9(4):986-1003.

37. Reyes, E., F.H. Sklar and J.W. Day, Jr. 1994. A regional organism exchange model for simulating fish migration. *Ecol. Mod.* 74:255-276.
38. Childers, D.L., F.H. Sklar and S.E. Hutchinson. 1994. Statistical treatment and comparative analysis of scale-dependent aquatic transect data in estuarine landscapes. *Landscape Ecology*. 9(2):127-141.
39. Hutchinson, S. and F.H. Sklar. 1993. Lunar periods as grouping variables for temporally-fixed sampling regimes in a tidally dominated estuary. *Estuaries*. 16(4):789-798.
40. Sklar, F.H., R. Costanza and T. Maxwell. 1992. State-of-the-art spatial modeling for wetland management. pp. 354-366. In: Steve Mathies (ed.). Barataria-Terrebonne National Estuary Program Workshop. American Management Systems. Arlington, VA.
41. Sklar, F.H., M.L. White and R. Costanza. 1991. The Coastal Ecological Landscape Spatial Simulation (CELSS) model: Users guide and results for the Atchafalaya/Terrebonne study area. US Fish and Wildlife Service, National Wetlands Center Open File Report 91-04. 86 pp.
42. Sklar, F.H. et al. 1991. Developments in regional scale simulation and analysis: Case studies from coastal wetlands. pp. 47-62. In: R.B. Singh (ed.). *Environmental Monitoring: Application of Remote Sensing and GIS*. Geocarto International Centre, Hong Kong. 192 pp.
43. Sklar, F.H. and R. Costanza. 1991. The development of dynamic spatial models for landscape ecology: A review and prognosis. pp. 239-288. In: M. G. Turner and R. H. Gardner (eds.). *Quantitative Methods in Landscape Ecology*. Springer-Verlag, New York 536 pp.
44. Sklar, F.H. and R. Costanza. 1991. Modeling natural and human impacts in wetlands. pp II:95-108. In: N. Marx, J. Carpenter and J. Rohling (eds.). *Preparing for the 21st Century: Solving Management Problems through Interpretation*, 1990 Roundtable Sessions. National Association for Interpretation. Fort Collins, CO. 152 pp.
45. Costanza, R., F.H. Sklar and M. White. 1990. Modeling coastal landscape dynamics. *Bioscience*. 40(2):91-107.
46. Michener, W.K., D.M. Allen, E.R. Blood, T.A. Hiltz, B. Kjerfve and F.H. Sklar. 1990. Climatic variability and salt marsh ecosystem response: Relationship to scale. pp. 27-37. In: D. Greenland and L. W. Swift, Jr. (eds.). *Climate variability and ecosystem response: Proceedings of a long-term ecological research workshop; 1988 August 21-23; Boulder, CO*. Gen. Tech. Rep. SE-65. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 90 pp.
47. Boumans, R and F.H. Sklar. 1990. A polygon-based spatial (PBS) model for simulating landscape change. 1990. *Landscape Ecology*. 4(2/3): 83-97.
48. Leibowitz, S., F.H. Sklar and R. Costanza. 1990. Perspectives on Louisiana wetland loss modeling. pp 729-754. In: R. R. Sharitz and J. W. Gibbons (eds.). *Freshwater Wetlands and Wildlife*. U.S. Dept. of Energy. Office of Health and Environmental Research. CONF-8603101.
49. Day, J.W. Jr., F.H. Sklar, C. Neill, W.H. Conner, C.H. Hopkinson, G.P. Kemp and R. Costanza. in press. In: B.C. Patten et al. (eds.). *Wetlands and Shallow Continental Water Bodies*, Vol. 2, SPB Academic Publishing, The Hague.
50. Sklar, F.H., R. Costanza and J.W. Day, Jr. 1990. Model conceptualization. pp. 625-

659. In: B.C. Patten et al. (eds.). *Wetlands and Shallow Continental Water Bodies*, Vol. 1, SPB Academic Publishing, The Hague.
51. Turner, M.G., R. Costanza and F.H. Sklar. 1989. Methods to evaluate the performance of spatial simulation models. *Ecological Modeling*. 48:1-18.
52. Ring, S. and F.H. Sklar. 1989. Simulating the long-term impacts of coastal development and landscape changes on the ecology of the Waccamaw River, SC. pp 3581-3587. In: O.T. Magoon et al. (eds.). *Proc., Coastal Zone '89 Conference*. Sixth Symposium on Coastal and Ocean Management. Vol.5.
53. Costanza, R., F.H. Sklar, M. White and J.W. Day, Jr. 1988. A dynamic spatial simulation model of land loss and marsh succession in coastal Louisiana. pp.99-114. In: Mitsch, W.J., M. Straskraba and S.E. Jørgensen (eds.). *Wetland Modeling*. Elsevier, Amsterdam.
54. Costanza, R., F.H. Sklar and J.W. Day, Jr. 1987. Using the Coastal Ecological Landscape Spatial Simulation (CELSS) model for wetland management.. pp. 3879-3890. In: O.T. Magoon et al. (eds.). *Coastal Zone '87, Proceedings of the Fifth Symposium on Coastal and Ocean Management*. American Society of Civil Engineers, New York.
55. Sikora, W.B. and F.H. Sklar. 1987. Benthos. pp. 58-79. In: W.H. Conner and J.W. Day, Jr. *The ecology of Barataria Basin, Louisiana: An estuarine profile*. U.S. Fish Wildl. Serv. Biol. Rep. 85(7.13). 165 pp.
56. Costanza, R., F.H. Sklar and J.W. Day, Jr. 1986. Modeling spatial and temporal succession in the Atchafalaya/Terrebonne marsh/estuarine complex in south Louisiana. pp. 387-404. In: D. A. Wolfe (ed.). *Estuarine Variability*. Academic Press. Orlando.
57. Sklar, F.H. and R. Costanza. 1986. A spatial simulation of ecosystem succession in a Louisiana coastal landscape. pp. 467-472. In: R. Crosbie and P. Luker (eds.). *Proceedings of the 1986 Summer Computer Simulation Conference*. Soc. Computer Simulation. San Diego.
58. Conner, W.H., J.R. Toliver and F.H. Sklar. 1986. Natural regeneration of baldcypress in a Louisiana swamp. *Forest Ecol. Manage.* 14:305-317.
59. Sklar, F.H. 1985. Seasonality and community structure of the backswamp invertebrates in a Louisiana cypress-tupelo wetland. *Wetlands*. 5:69-86.
60. Sklar, F.H., R. Costanza and J.W. Day, Jr. 1985. Dynamic spatial simulation modeling of coastal wetland habitat succession. *Ecol. Model.* 29:261-281.
61. Sklar, F.H. 1985. Crustacea (*Procambarus clarkii*) response to an organo-phosphate diet. *Environ. Pollution (Series A)*. 39:131-140.
62. Costanza, R. and F.H. Sklar. 1985. Articulation, accuracy, and effectiveness of mathematical models: a review of freshwater wetland applications. *Ecol. Model.* 27:45-68.
63. Sklar, F.H. and J.W. Day, Jr. 1984. Canals, hydroclimate, and the maintenance of wetland forests in Louisiana. pp. 168-183. In: R.R. Lewis (ed.). *Proceedings of the 11th Annual Conference on Wetlands Restoration and Creation*. Hillsborough Community College, Tampa.
64. Sklar, F.H. and W.H. Conner. 1983. Swamp forest communities and their relation to hydrology: The impacts of artificial canals. 1983. pp. 245-272. In: R. J. Varnell (ed.). *Water Quality and Wetland Management Conference Proceedings*. University of

Tulane Press, New Orleans.

65. Sklar, F.H. and K. McKee. 1984. The adenylate energy charge (AEC) response to stress and extraction technique in the Louisiana crayfish, *Procambarus clarkii*. J. Environ. Contamin. Tox. 33(5):584-591.
66. Sklar, F.H., R. Costanza, J.W. Day, Jr., and W.H. Conner. 1982. Dynamic simulation of aquatic material flows in an impounded swamp habitat in the Barataria Basin, La. pp. 741-750. In: W. K. Lauenroth, G.V. Skogerboe and M. Flug (eds.). Analysis of Ecological Systems: State-of-the-Art of Ecological Modeling. Elsevier Scientific, Amsterdam.
67. Day, J.W. Jr., C.S. Hopkinson, G. P. Kemp, F.H. Sklar and W.H. Conner. 1982. Modelling approaches to understanding and management of freshwater swamp forests in Louisiana (USA). pp. 73-105. In: D.O. Logofet and N.K. Lyckyanon (eds.). Ecosystem Dynamics in Freshwater Wetlands and Shallow Water Bodies, Vol. 2. USSR Academy of Science, Moscow.
68. Sklar, F.H. and R.E. Turner. 1981. Characteristics of phytoplankton production off Barataria Bay in an area influenced by the Mississippi River. Contr. Mar. Sci. 24:87.
69. Meyers, S.P., J.W. Day, Jr., R.P. Gambrell, F.H. Sklar and R. Portier. 1981. Determination of the environmental impact of several substitute chemicals in agriculturally-affected wetlands. Report to the US Environmental Protection Agency. Center for Wetland Resources. 136 pp.
70. Sklar, F.H. 1981. A preliminary comparison of the uptake of chromium-51 and zinc-65 by three species of aquatic plants from Louisiana. La. Acad. Sci. 43:46.
71. Sklar, F.H. and W.H. Conner. 1979. Effects of altered hydrology on primary production and aquatic animal populations in a Louisiana swamp forest. pp 191-210. In: J.W. Day, Jr., D.D. Culley, Jr., R.E. Turner and A.J. Mumphrey, Jr. (eds.) Proc. Third Coastal Marsh and Estuary Management Symposium. LSU Division of Continuing Education, Baton Rouge.

#### **Abstracts and Special Presentations:**

- Monitoring and assessment for the Comprehensive Everglades Restoration Plan, American Water Resources Association, Key West, FL. July 26-27, 2001.
- Spatial simulations of tree islands for Everglades restoration. USGS Symposium on Greater Everglades Ecosystem Restoration, Tampa, FL, Oct. 5-9, 2000.
- Landscape restoration and monitoring, Key Note Speaker and Coordinator, International Association of Landscape Ecology, Ft. Lauderdale, FL, April 15-19, 2000.
- The effects of altered hydrology on the Everglades. 15th International Conference of the Estuarine Research Federation, New Orleans, LA, Sept. 25-30, 1999
- Sedimentation and erosion in the Florida Bay mangrove transition zone. The 1999 Florida Bay and Adjacent Marine Ssystems Science Conference. Key Largo, FL, Nov. 1-5, 1999
- The use and uncertainties of spatial data for landscape models. International Association of Landscape Ecology, 5<sup>th</sup> World Congress, Snowmass Village, CO, July 29 – Aug. 4, 1999
- The effects of altered hydrology on the Everglades. InterAmerican Initiative on Tropical Ecosystems and Biogeochemical Cycles, Merida, Mexico, Jan 10-14, 1999

- Ecosystem analysis of phosphorus impacts and altered hydrology in the Everglades: A landscape modeling approach. Subtropical Phosphorus Biogeochemistry Symposium, Clearwater, FL, July 14-16, 1997
- The importance of tree islands in the Florida Everglades. Conference on the Ecology of Tree Islands in the Everglades. Boca Raton, FL, July 15-16, 1998
- The Everglades Landscape Model: A design for ecosystem synthesis, hypothesis testing, and resource management. 14th International Conference of the Estuarine Research Federation, Providence, RI, Oct. 12-16, 1997
- The Everglades Landscape Model: Calibration for WCA-2A. 12<sup>th</sup> Annual Symposium of the U.S. Regional Association of the International Association for landscape Ecology, Durham, NC, March 16-19, 1997.
- Managing coastal environmental impacts brought about by alterations to freshwater flow. 13th International Conference of the Estuarine Research Federation, Corpus Christi, TX, Nov. 12-16, 1995
- The development of an Everglades Landscape Model (ELM): A tool for hypothesis testing and wetland management. 1995 ASA-CSSA-SSSA Annual Meeting, St. Louis, MO, Oct. 29 - Nov. 3, 1995
- The development of an Everglades Landscape Model. International Society for Ecological Modeling. San Diego, CA, Aug. 6-10, 1995
- Coastal Gulf of Mexico environmental impacts brought about by alterations to freshwater flow. In: NRC Ocean Studies Board. Symposium on Improving Interactions Between Coastal Science and Policy, 25-27 Jan. 1995, New Orleans.
- Dynamic Landscape models for Wetland Research and Management. Technical Issues Workshop. North American Benthological Society. 24-27 May 1994, Orlando.
- Landscape Modeling in the Everglades. American Society of Limnology and Oceanography. 12-16 June 1994, Miami.
- Fire Modeling in the Everglades using Parallel Processing Technology. U.S. Landscape Ecology Symposium. 23-26 March 1994, Tuscon
- The simulated effects of golf courses and land use change on tidal freshwater wetlands. Estuarine Research Federation Conference. 14-18 Nov. 1993, Hilton Head, SC
- Spatially explicit and implicit dynamic simulations of wetland processes. International Association for Ecology Symposium on Global Wetlands. 13-18 Sept. 1992. Columbus, Ohio
- The historical basis for landscape models: Are we doing anything new? U.S. Landscape Ecology Symposium. Regional Landscape Change: Impacts of Climate and Land Use. Corvallis, OR. 8-11 April, 1992.
- Long-term ecological trends in the salt marshes of North Inlet, SC. 1981-1988. Estuarine Research Conf. Nov. 10-14, 1991. San Francisco.
- Lunar periods as grouping variables for temporally-fixed sampling regimes in tidally-dominated wetlands. 42nd AIBS Annual Meeting. San Antonio, 4-8 August, 1991.
- Landuse change and coastal development in South Carolina as forcing functions for a tidal freshwater wetland model. World Congress of Landscape Ecology. Ottawa, 21-25 July, 1991.
- The basis for landscape ecology. Distinguished Lecturer. Institut de Recherche en Biologie Végétale, Montréal, 5 April 1991.
- The development of dynamic landscape models. Southeastern Estuarine Research



Society. Jekyll Island, GA, 25-27 October 1990.

Long-term ecological research at North Inlet, SC: Phase I synthesis. Amer. Soc. of Limno. and Oceanog. Williamsburg, VA 10-15 June 1990.

Modeling natural and human impacts on wetlands. National Assoc. of Interpretation and US Fish and Wildlife Service, Atlanta, GA, 8-11 May 1990.

The development of spatial modeling for estuarine landscape simulations. International Estuarine Research Conference. Baltimore, Maryland. 8-12, October 1989.

A polygon-based spatial (PBS) model for simulating landscape change. 40th AIBS Annual Meeting. Toronto, Canada. 6-10 August 1989.

Simulating the long-term impacts of coastal development and landscape changes on the ecology of the Waccamaw River, SC. Sixth Symposium on Coastal and Ocean Management. Charleston, SC. 11-14 July 1989.

Ecosystem modeling using graphic-oriented programming: An introduction to STELLA and the CELSS model. 1988 Annual Meeting, Ecological Society of America. Davis, CA. 14-18 August 1988.

Multiple resolution procedures for determining the fit and predictability of landscape patterns. Third Annual Landscape Ecology Symposium. Albuquerque, NM. 16-19 March 1988.

A dynamic spatial simulation of land loss and marsh succession in coastal Louisiana. International Estuarine Research Conference. New Orleans, LA. 25-30 October 1987

Cancer rates in Lower Mississippi River catfish. International Conference on Water and Human Health. 22nd Annual Conference of the American Water Resources Association. Atlanta, GA. 9-14 November 1986.

A spatial simulation of ecosystem succession in a Louisiana coastal landscape. 1986 Summer Computer Simulation Conference. Reno, Nevada. 28-30 July 1986.

Introduction to the Coastal Ecosystem Landscape Simulation (CELS) Model. Special Seminar Presentation. Royal Danish School of Pharmacy. Dept. of Pharmaceutical Chemistry, Copenhagen, Denmark. July 21, 1986.

Landscape Modeling. Invited Speaker. Institute of Landscape Ecology and Department of Botany. State University of Utrecht, Utrecht, The Netherlands. June 25-26, 1986

Models of wetland habitat succession in the Louisiana coastal zone. DOE symposium series. Savannah River Ecology Laboratory, DOE symposium series. Charleston, S. C. 24-27 March 1986.

Optimization for a dynamic, spatial simulation model of estuarine habitat succession in the Atchafalaya River complex, Louisiana. Intern. Soc. Ecol. Mod. Gainesville, FL. August 12-15, 1985.

Backswamp invertebrates: a rare glimpse of the aquatic fauna in a Louisiana cypress-tupelo wetland. Estuarine Res. Federation, Durham, N.H. July 28-Aug. 2, 1985.

A spatial model for an estuarine landscape in Louisiana. Amer. Soc. Limno. Oceano. Minneapolis, Minn. June 18-21, 1985.

Spatial, dynamic, simulation modeling of marsh habitat changes in the Atchafalaya Delta, Louisiana. Amer. Inst. Bio. Sci., Ft. Collins, CO. August 6-10, 1984.

Regulation of benthic community structure in forested wetlands. Amer. Soc. Limno. Oceano. St. John's, Newfoundland, Canada. June 13-16, 1983.

Backswamp aquatic invertebrates: a structural analysis. Amer. Soc. Limno. Oceano. Raleigh, NC. June 14-17, 1982.

Dynamic simulation of aquatic material flows in an impounded swamp habitat in the Barataria Basin, La. Third International Conference on the State-of-the-Art of Ecological Modeling. Fort Collins, CO. May 24-28, 1982.

The effects of hydrologic and chemical perturbations upon the population dynamics of shallow-water invertebrates in cypress-tupelo swam. Gulf Estu. Res. Soc. Pensacola, FL. October 9-11, 1980.

Effects of altered hydrology on primary production and aquatic animal populations in a Louisiana swamp forest. Third Coastal Marsh and Estuary Management Symposium. Baton Rouge, LA. March 6-7, 1978.

Effects of agricultural insecticides on aquatic animal populations in a Louisiana swamp forest. Amer. Soc. Limno. Oceano. Victoria, British Columbia. June 20-23, 1978.

Primary production in the coastal waters of Louisiana. Amer. Soc. Limno. Oceano. Savannah, GA. June 18-21, 1976.

**Workshop Coordination:**

Everglades Tree Islands (1998) West Palm Beach

Uncertainty in Landscape Data (1997) San Diego, CA

SERA/Restudy workshops (1995-1999) So. Florida

RECOVER workshops (1999) West Palm Beach

Fl Bay modeling workshops (1996-1999) Gainesville, Duck Key, Miami

Fl Bay response to Hurricane Irene (1999) Key Largo

P-Thresholds for the Everglades (1995-1998) West Palm Beach

ELM/ATLSS workshops (1994, 1997, 1999) So. Florida

**Peer Review Activity:**

National Science Foundation

National Academy of Sciences

Landscape Ecology

Ecological Modeling

Ecological Economics

Estuaries

USDA

South Carolina Sea Grant

Louisiana Sea Grant

**Professional and community service membership:**

American Society of Limnology and Oceanography

Ecological Society of America

Estuarine Research Federation

North American Lake Management Society

North American Benthological Society

International Society of Ecological Modelling

American Water Resources Association

AAAS

International Association for Landscape Ecology

## Society of Wetland Scientists

### **Funded Research:**

- USGS Critical Ecosystem Initiative. 1999-2001 Funding for SFWMD to conduct seagrass research and develop a unit model for Florida Bay habitats. (\$210,000)
- USGS Critical Ecosystem Initiative. 1998-2000 Funding for SFWMD to conduct research on wading birds, tree islands and Florida Bay. (\$250,000)
- The Everglades Landscape Model: 1995-1996. A Spatial Simulation Program for Wetland Management and Restoration; National Center for Supercomputer Application, PI (200 su's of computer time).
- Continuation of Long-Term Ecological Research at North Inlet, South Carolina; National Science Foundation Co-PI, Coordinator (\$1,000,000)
- Landscape Modeling: The Synthesis of Ecological Processes Over Large Geographic Regions and Long Time Scales; National Science Foundation. PI. (\$275,000)
- Modeling the Effects of Coastal Development on Tidal Freshwater Marshes on the Waccamaw River, South Carolina; South Carolina Sea Grant PI. (\$8,000)
- Using the Hypertext Concept to Teach Ecological Modeling; USC Venture Funds PI. (\$7,000)
- Spatial Simulation Modeling of Coastal Wetland Systems for Evaluating Management Alternatives. U.S. Fish and Wildlife Service and U.S. Army Corps of Engineers, Co-PI (\$180,000).

### **Teaching Experience and Students:**

- MBF 571 - Introduction to Ecological Modeling,  
Rosenstiel School of Marine and Atmospheric Science, University of Miami.
- BIO 502 - Coastal Ecosystem Ecology and Modeling  
Grice Marine Lab, College of Charleston
- MRSC 601 - Ecosystem Modeling (assistant lecturer)  
Coastal Ecology Institute, Louisiana State University

#### MS Students:

- Sharon S. Ring. 1987. Simulating impacts of coastal development on fresh water tidal wetlands in South Carolina. Dept. of Environmental Sciences, Univ. of S. Carolina.

#### Doctoral Students:

- Enrique Reyes. 1989. Spatial and temporal landscape simulation of water dynamics and fish migration patterns in a semitropical coastal lagoon. Dept. of Marine Sciences, La. State Univ.
- Marguerite Koch-Rose. 1996. Resource competition and environmental stress controlling Rhizophora mangle development at a Rhizophora-marsh ecotone in South Florida. Rosenstiel School of Marine and Atmospheric Science, University of Miami.
- Carla Maria Senior. 2002. Undecided landscape modeling topic. Rosenstiel School of Marine and Atmospheric Science, University of Miami.
- Susan Dailey. 2001. Nutrient processing by mangroves. Dept. Biological

Sciences, Florida International University of Miami.

Faith Clarke, current. Development of an invasive index and remote sensing technique for assessing *Lygodium microphyllum* on tree islands in the Loxahatchee National Wildlife Refuge. Florida Agricultural and Mechanical University, Tallahassee.

Post-Doctoral Students:

Daniel L. Childers. 1989-1993. Estuarine landscape analysis and modeling. Baruch Marine Lab, Univ. of S. Carolina.

Dan Mason. 1997-1999. Tree Island Plant Diversity. Center for Environmental Studies, FAU.